

## CLAIMS

1. Method for driving the support rolls (7c) of a continuous casting machine for liquid metals, especially liquid steel materials, which support rolls form a strand guide (7) for the continuously cast strand (1), which strand guide consists of electrically driven individual support rolls (7c) and/or hydraulically adjustable support roll segments (9), wherein an automatic load balance control system (12) for the drives (10) is used as the sum of the individual forces for casting speed, motor torque, motor speed, and standard correction factors, characterized by the fact that a total driving torque for all drives (10) is determined from the normal force of the driven drive support rolls (7c) and proportionately transmitted to each support roll (7c) in such a way that a static base setting of the torque distribution is used as the basis for the specific load capacity of each drive support roll (7c).

2. Method in accordance with Claim 1, characterized by the fact that the specific load capacity of a drive support roll (7c) is determined from the geometry of the strand guide (7), the ferrostatic head, and/or the roll separation (7b).

3. Method in accordance with Claim 1 or Claim 2, characterized by the fact that the current contact forces ( $F_1 - F_n$ ) of the piston-cylinder units (11) of a strand support roll segment (9) or of a drive support roll (7c) and operational values of the casting format are fed back to the automatic load balance control system (12).

4. Method in accordance with Claim 3, characterized by the fact that a dynamic factor derived from the contact forces ( $F_1 - F_n$ ) of the individual torques ( $M_{1-n}$ ) and from the individual speeds ( $n_{1-n}$ ) for the preassigned torque value for each drive (10) is obtained from the ratio of the current normal force of the drive support roll (7c) to the theoretical normal force.

5. Method in accordance with any of Claims 1 to 4, characterized by the fact that an additional correction factor for the roll wear and the friction conditions between the cast strand (1) and the support rolls (7a) or drive support roll (7c) is taken into account.

6. Method in accordance with any of Claims 1 to 5, characterized by the fact that an unweighted overall factor formed from the specific load capacity, the dynamic factor, and the additional correction factor is taken into consideration.

7. Method in accordance with Claim 6, characterized by the fact that a weighted overall factor is formed from the unweighted overall factor by multiplication with the ratio of the number of all active drives (10) to the sum of all unweighted factors of all active drives (10) and taken into consideration.

8. Method in accordance with any of Claims 1 to 7, characterized by the fact that a closed-loop control system is provided for each drive (10) and is supplied with the mean value of the driving torques of all active drives (10) and of the set-point speed ( $n_{\text{set}}$ ).

9. Method in accordance with Claim 7 and Claim 8, characterized by the fact that the mean value, together with the weighted overall factor in each case, is supplied to the automatic controllers as a set point ( $M_{\text{set}}$ ), and each automatic controller converts it to a speed set point ( $n_{\text{set}}$ ).

10. Method in accordance with Claim 8 or Claim 9, characterized by the fact that, for the determination of the mean value or the summation of the driving torques, only those drives (10) are considered which are suitable for the transmission of the driving torque.

11. Method in accordance with Claim 8 or Claim 9, characterized by the fact that the current contact forces ( $F_1 - F_n$ ) of the piston-cylinder units (11) for the strand support roll segments (9) or of the drive support rolls (7c) or of the piston-cylinder units (11) of the drive support rolls (7c) are increased until the required driving torque is transmitted.

12. Device for driving drive support rolls (7c) of a continuous casting machine for liquid metals, especially liquid steel materials, comprises a strand guide (7) for the continuously cast strand (1), which strand guide (7) consists of electrically driven individual drive support rolls (7c) and/or hydraulically adjustable strand support roll segments (9), wherein an automatic load balance control system (12) for the drives (10) is developed as the sum of the individual forces for casting speed, motor torque, motor speed, and standard correction factors, characterized by the fact that the automatic load balance control system (12) has a computer block (13) for determining the torque distribution, whose input variables (14) consist at least of the number "n" of active drives (8, 11) and the load capacity of the individual drive support rolls (7c), wherein processing values expressed by the plant-specific design of the strand guide (7) and the geometric data of the

continuously cast strand (1) are input, and that information about the state of wear of the drive support rolls (7c) and the current contact forces  $F_{1-n}$  and the current driving torques  $M_{actual,1-n}$  are used as input variables (14).

13. Device in accordance with Claim 12, characterized by the fact that a set point  $M_{set,1-n}$  is determined in the computer block (13) from the input variables (14) and introduced into each torque controller (15) as an input variable (16).

14. Device in accordance with Claim 12 and Claim 13, characterized by the fact that each torque controller (15) is connected to a speed controller (17), to which a correction speed (18) for the electric motor (8) can be transmitted.